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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,958	08/26/2003	Hanching G. Wang	03-0484	5239

22462 7590 10/11/2005

GATES & COOPER LLP  
HOWARD HUGHES CENTER  
6701 CENTER DRIVE WEST, SUITE 1050  
LOS ANGELES, CA 90045

EXAMINER
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BEHNCKE, CHRISTINE M

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/647,958

Applicant(s)

WANG ET AL.

Examiner

Christine M. Behncke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,11,14,15,21,24 and 25 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 6-10, 12, 13, 16-20, 22 and 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This office action is in response to the Application filed 26 August 2003, in which claims 1-30 were presented for examination.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 5, 11, 14, 15, 21, 24 and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Yocum, Jr. et al., US Patent No. 6,260,805.

3. **(Claim 1)** Yocum Jr. et al. discloses a method of estimating a momentum to be removed from a spacecraft: generating a plurality of spacecraft momentum measurements (Column 6, lines 3-13); fitting the plurality of spacecraft momentum measurements to a parametric model of a spacecraft momentum profile having a time period of  $t_p$  (Column 6, lines 56-64, and Column 11, line 53-Column 12, line 20 during the time period between XIPs burn); determining the momentum of the spacecraft from the parametric model (Column 11, line 53-Column 12, line 20); and generating an estimate of the momentum to be removed from the spacecraft at least in part from the determined momentum of the spacecraft (Column 6, lines 56-67).

4.     **(Claim 4)** Yocum Jr. et al. further discloses wherein the periodic spacecraft momentum profile comprises a plurality of segments, each segment modeled by a set of basis functions (Column 6, lines 3-13).
5.     **(Claim 5)** Yocum Jr. et al. further discloses wherein the set of basis functions is selected from the group comprising: a polynomial; and a Fourier series (Column 6, lines 3-13).
6.     **(Claim 11)** Yocum Jr. et al. discloses an apparatus for estimating a momentum to be removed from a spacecraft: means for generating a plurality of spacecraft momentum measurements (figure 6, Column 6, lines 3-13); means for fitting the plurality of spacecraft momentum measurements to a parametric model of a spacecraft momentum profile having a time period of  $t_p$  (Column 6, lines 56-64, and Column 11, line 53-Column 12, line 20 during the time period between XIPs burn); means for determining the momentum of the spacecraft from the parametric model (Column 11, line 53-Column 12, line 20); and means for generating an estimate of the momentum to be removed from the spacecraft at least in part from the determined momentum of the spacecraft (Column 6, lines 56-67).
7.     **(Claim 14)** Yocum Jr. et al. further discloses wherein the periodic spacecraft momentum profile comprises a plurality of segments, each segment modeled by a set of basis functions (Column 6, lines 3-13).
8.     **(Claim 15)** Yocum Jr. et al. further discloses wherein the set of basis functions is selected from the group comprising: a polynomial; and a Fourier series (Column 6, lines 3-13).

9. **(Claim 21)** Yocum Jr. et al. discloses an apparatus for estimating a momentum to be removed from a spacecraft: a first module for accepting a plurality of spacecraft momentum measurements and for fitting the plurality of spacecraft momentum measurements to a parametric model of a spacecraft momentum profile having a time period of  $t_p$  (flight computer 22, figure 6, Column 11, line 53-Column 12, line 20); a second module for determining the momentum of the spacecraft from the parametric model (flight computer 22, figure 6, Column 11, line 53-Column 12, line 20); and a third module for generating an estimate of the momentum to be removed from the spacecraft at least in part from the determined momentum of the spacecraft (figure 6, element 64).

10. **(Claim 22)** Yocum Jr. et al. further discloses a processor (flight computer 22, figure 6), and wherein the first module, the second module, and the third module are software modules comprising instructions performable by the processor (figure 6).

11. **(Claim 24)** Yocum Jr. et al. further discloses wherein the periodic spacecraft momentum profile comprises a plurality of segments, each segment modeled by a set of basis functions (Column 6, lines 3-13).

12. **(Claim 25)** Yocum Jr. et al. further discloses wherein the set of basis functions is selected from the group comprising: a polynomial; and a Fourier series (Column 6, lines 3-13).

***Allowable Subject Matter***

13. **Claims 2, 3, 6-10, 12, 13, 16-20, 22 and 23** are objected to as being dependent upon a rejected base claim and are at present considered to overcome the prior art of

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record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

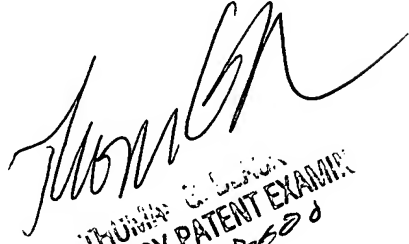
### ***Conclusion***

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine M. Behncke whose telephone number is (571) 272-8103. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on (571) 272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10-01-2005

  
THOMAS G. BLACK  
SUPERVISORY PATENT EXAMINER  
GROUP 262d